REMARKS

As amended, the Applicant submits that all rejections have been overcome and the present application is now in condition for allowance. The foregoing amendments and the following remarks are responsive to the Office Action mailed October 31, 2001. Applicant respectfully requests entry of the submitted amendment and reconsideration of the present application as amended. As amended, claims 1-22 are present in the application. Claims 1, 2, 4, 7, 9, and 11 have been amended. No new matter has been added. The claims have been amended to clarify the invention, and are not regarded as necessary to distinguish the invention over the cited art. However, arguments responsive to the Office Action regarding the propriety of the rejections are presented with respect to the claims as presently amended, without regard to propriety of the rejection(s) of the un-amended claims.

Specification

The amendment to the specification (to the abstract) has been objected to as containing new matter when read in light of claim 4 as amended in the response of August 17, 2001. The Applicant submits that the implication of new matter was not intended, and that the amendment to the specification does not contain new matter. Moreover, claim 4 has been further amended for clarification, and to avoid the implication of new matter in both the specification and the claims. The Applicant submits that the language of the specification as amended relates both to language of the specification regarding Figure 3B (*see* Specification page 7, lines 7 to 16 for example) and to the language of claim 11

as originally submitted and as presently amended. The Applicant would welcome an interview with the Applicant's representative to further clarify this issue if such interview may be useful.

Claim Rejections under 35 U.S.C. § 112

Claims 4 and 7 are rejected under 35 U.S.C. § 112. These claims have been amended, and as amended are believed to no longer be subject to these rejections. Furthermore, with respect to claim 4, the Applicant submits that the prior amendment of August 17, 2001 was made through error and without deceptive intent.

Rejection over Nagasaki et al. under 35 U.S.C. § 102(b)

Claim 1 is rejected under 35 U.S.C. § 102(b) as anticipated by *Nagasaki et al.* (US Patent 5,508,990), hereinafter *Nagasaki*. Applicant respectfully traverses the rejection for the reasons that follow. Applicant respectfully submits that claim 1 is neither taught nor anticipated by *Nagasaki* as *Nagasaki* does not teach the invention claimed in claim 1.

More specifically, with respect to claim 1, Applicant submits that *Nagasaki* does not teach an optical recording system having both a reading array and a writing array of modulatable light sources. The Office Action refers to laser diode arrays 88_1, 88_2, 88_3, 88_4 and 88_5 as providing multiple arrays of modulatable light sources. Applicant submits that the group of 88_1, 88_2, 88_3, 88_4 and 88_5 should be viewed as a single array of modulatable light sources.

However, it is also not apparent whether one of these arrays is a reading array and another is a writing array. What little evidence *Nagasaki* provides suggests that a single array (the combination of 88_1, 88_2, 88_3, 88_4 and 88_5) is used for reading at one time and writing at another time, and not for both purposes. As pointed out in the specification of the present application, a read after write function is available in the presently claimed invention (*see* Specification, page 7, lines 15-16), which is not available from the use of a single array in *Nagasaki*. For at least these reasons, *Nagasaki* does not anticipate claim 1 or its dependent claims.

Rejection over Nagasaki in view of Jewell et al. under 35 U.S.C. § 103(a)

Claims 1-4 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nagasaki* in view of *Jewell et al.* (US Patent 5,526,182), hereinafter *Jewell*. However, as Applicant understands the obviousness rejection, it is based upon the anticipation rejection of claim 1 in view of *Nagasaki*. As illustrated above, claim 1 is not anticipated by *Nagasaki*. Moreover, no showing has been made that claim 1 as amended is obvious over *Nagasaki* in view of *Jewell*. With respect to the issue of both reading and writing, the Applicant believes that the claims as amended make clear that the ability to simultaneously read and write is what the Applicant refers to. Neither *Jewell* nor *Nagasaki* have been shown to have such an ability, and both appear to only use a single array of light sources, as described above and in the Response of August 17, 2001. As such, the combination of the two does not yield the claimed invention,

neither provides evidence of both a reading array and a writing array of modulatable light sources.

For at least these reasons, *Nagasaki* in view of *Jewell* cannot render obvious Applicant's invention, and Applicant respectfully requests the withdrawal of the rejection of the claim under 35 U.S.C. § 103(a) over the combination. Other issues, such as whether the combination of *Nagasaki* and *Jewell* are appropriate or what such a combination yields are not addressed at this time.

Rejection over Brewen et al. in view of Goto under 35 U.S.C. § 103(a)

Claims 11-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Brewen et al.* (U.S. Patent 5,524,105), hereinafter *Brewen*, in view of *Goto* (U.S. Patent 6,084,848). The Applicant submits that such a combination is improper, as *Goto*, by its terms, relates to a contact head, and illustrates use of VCSEL arrays which are in direct contact with the media surface (*see, e.g. Goto*, col. 2, lines 1-5, [use of contact system to avoid limitations introduced by lenses], *see also Goto*, col. 5, lines 41-63), whereas *Brewen* deals with an optical system wherein the sources of illumination provide beams of light which pass through optical elements to arrive at the media surface. Aside from this clear distinction, *Goto*, illustrates use of two VCSEL arrays for the purpose of providing redundancy, having VCSELs of a second array activated in response to failure of corresponding VCSELs of a first array. *See Goto*, col. 6, line 62 -col. 7, line 16.

With respect to *Brewen*, the illumination source 35 is described as generating a diverging light beam (singular) which is shaped and directed to form a narrow rectangular illuminated area. *See Brewen* at col. 4, lines 35-49. It will be appreciated

that such a narrow rectangular area is significantly easier to produce and that the laser in question is significantly easier to work with than an array of modulatable light source, and thus that substituting such an array into the *Brewen* device is not an obvious design choice, even in view of references such as *Goto*, or *Jewell*. For at least these reasons, the combination cannot render obvious Applicant's invention as claimed in claims 11-13, and Applicant respectfully requests the withdrawal of the rejection of the claims under 35 U.S.C. § 103(a) over the combination.

Rejection over Brewen in view of Goto further in view of Yamaguchi et al. under 35 U.S.C. § 103(a)

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Brewen* in view of *Goto* further in view of *Yamaguchi* (U.S. Patent 5,365,535), hereinafter *Yamaguchi*. Applicant respectfully traverses the rejection because the combination does not teach or disclose the invention as claimed in claim 14. As Applicant understands the rejection, the obviousness rejection of claim 14 depends on the obviousness rejection of claim 11 in view of *Brewen* in view of *Goto*. However, as illustrated above, claim 11 is patentable over *Brewen* in view of *Goto*. Furthermore, with respect to *Yamaguchi*, *Yamaguchi* specifically refers to 553a and 553b as separate objective lenses (*see Yamaguchi* at col. 33, lines 55-58 for example), rather than a single achromatic lens as claimed. Therefore, the combination cannot render obvious Applicant's invention as claimed in claim 14, and Applicant respectfully requests the withdrawal of the rejection of the claims under 35 U.S.C. § 103(a) over the combination.

Rejection over Brewen in view of Goto further in view of Jewell under 35 U.S.C. § 103(a)

Claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Brewen* in view of *Goto* further in view of *Jewell*. Applicant respectfully traverses the rejection because the combination does not teach or disclose the invention as claimed in claims 15-19. As Applicant understands the rejection, the obviousness rejection of claims 15-19 depends on the obviousness rejection of claim 11 in view of *Brewen* in view of *Goto*. However, as illustrated above, claim 11 is patentable over *Brewen* in view of *Goto*. Therefore, the combination cannot render obvious Applicant's invention as claimed in claims 15-19, and Applicant respectfully requests the withdrawal of the rejection of the claims under 35 U.S.C. § 103(a) over the combination.

Rejection over Brewen in view of Goto further in view of Hayashi et al. under 35 U.S.C. § 103(a)

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Brewen* in view of *Goto* further in view of *Hayashi et al.* (U.S. Patent 5,703,856), hereinafter *Hayashi*. Applicant respectfully traverses the rejection because the combination does not teach or disclose the invention as claimed in claims 20 and 21. With respect to *Hayashi*, Applicant notes that *Hayashi* explains the presence of sources 141a and 141b as sources for use with either a thin optical disk (141a) or a compact disc (141b). *See Hayashi* at col. 9, lines 3-5. *Hayashi* further explains the use of the beams 143a and 143b as having one beam (143a) used when a thin optical disk is

present, or having the other beam (143b) used when a compact disk is present. *See Hayashi* at col. 9, lines 10-12, lines 44-47, for example.

Furthermore, as Applicant understands the rejection, the obviousness rejection of claims 20 and 21 depends on the obviousness rejection of claim 11 in view of *Brewen* in view of *Goto*. However, as illustrated above, claim 11 is patentable over *Brewen* in view of *Goto*. Therefore, the combination cannot render obvious Applicant's invention as claimed in claims 20 and 21, and Applicant respectfully requests the withdrawal of the rejection of the claims under 35 U.S.C. § 103(a) over the combination.

Rejection over Brewen in view of Goto, Hayashi, and Yamaguchi under 35 U.S.C. § 103(a)

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Brewen* in view of *Goto, Hayashi,* and *Yamaguchi*. Applicant respectfully traverses the rejection because the combination does not teach or disclose the invention as claimed in claim 22. Applicant submits that the prior remarks with respect to the various references illustrate that the combination does not teach the invention as claimed. In particular, the combination of *Goto* and *Brewen* is not permissible, as they do not deal with the same technology, and does not lead to the claimed invention. *Hayashi* does not teach a reading array and a writing array of modulatable light sources, rather it teaches an array for thin optical disks and an array for compact disks. *Yamaguchi* teaches use of two separate focusing elements, one for the read beam and one for the write beam, rather than a single achromatic element for both a read and a write beam. The combination is inappropriate and does not teach the invention for other reasons as well, but it is

believed that these reasons provide sufficient indication that the rejection is improper. Therefore, the combination cannot render obvious Applicant's invention as claimed in claim 22, and Applicant respectfully requests the withdrawal of the rejection of the claim under 35 U.S.C. § 103(a) over the combination.

Condition for Allowance

Applicant submits that all rejections have been overcome and the present application is now in condition for allowance. If the Examiner has any questions or comments, the Applicant respectfully requests that the Examiner contact the undersigned by telephone.

Deposit Account Authorization and Extension of Time Request

Please charge any shortages and credit any overages to Deposit Account No. 02-2666, including any funds necessitated due to insufficient funds for an accompanying check. Any necessary extension of time for response not already requested is hereby requested. Please charge any corresponding fee to Deposit Account No. 02-2666.

Respectfully submitted,

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Date: January 31, 2002

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MARKED-UP VERSION OF AMENDMENTS

Added words are underlined, deleted words are bracketed. Indications of amendments are made relative to the original application, with the assumption that the amendment of August 17, 2001 was entered.

IN THE CLAIMS

1. (Twice Amended) An optical recording system comprising:

a [first] writing array of modulatable light sources;

a [second] reading array of modulatable light sources; and

an objective lens positioned relative to said [first] writing array and said [second] reading array of modulatable light sources such that said objective lens is capable of focusing at least one light beam from each of said [first] writing array and said [second] reading array of modulatable light sources on a target medium;

and

a detector to receive a set of one or more beams, the set of one or more beams having emanated from the reading array of VCSEL and the set of one or more beams having reflected from the target medium.

2. (Twice Amended) The optical recording system of claim 1 wherein said [first] writing array of modulatable light sources comprises a first array of Vertical Cavity Surface Emitting Lasers (VCSEL) and said [second] reading array of modulatable light sources comprises a second array of VCSELs.

3. (Amended) The optical recording system of claim 2 wherein said first and said second VCSEL arrays are embedded in a substrate.

4. (Twice Amended) The optical recording system of claim 3 wherein each VCSEL of said first [and said second] VCSEL array is capable of writing a separate track on said target medium.

5. (Unchanged) The optical recording system of claim 1 wherein said modulatable light sources are spaced at regular intervals.

6. (Unchanged) The optical recording system of claim 5 wherein said regular intervals comprise center-to-center distances of at least approximately 40 microns.

7. (Amended) The optical recording system of claim 1 wherein said writing array of modulatable light sources comprises at least one line of modulatable light sources positioned at an angle relative to a direction of movement of said target medium.

8. (Unchanged) The optical recording system of claim 7 wherein each modulatable light source of said at least one line of modulatable light sources is associated with a separate path on said target medium.

9. (Twice Amended) The optical recording system of claim 1 further comprising:

a polarizing beam-splitter located between said [first] writing and said [second] reading array of modulatable light sources and said objective lens; and

a circularly polarizing element located adjacent said polarizing beam-splitter.

10. (Unchanged) The optical recording system of claim 9 wherein said circularly polarizing element comprises a quarter wave plate.

11. (Twice Amended) An optical recording system comprising:

a first array of Vertical Cavity Surface Emitting Lasers (VCSEL);

a second array of VCSEL; and

an objective lens located in an optical path of each of said first and second VCSEL arrays, wherein said objective lens is capable of focusing at least one light beam from each of said first and second VCSEL arrays on a target medium;

and

a detector to receive a set of one or more beams, the set of one or more beams having emanated from the second array of VCSEL and the set of one or more beams having reflected from the target medium.

12. (Unchanged) The optical recording system of claim 11 wherein said first VCSEL array comprises a writing array and said second VCSEL array comprises a reading array.

13. (Unchanged) The optical recording system of claim 12 wherein said first VCSEL array comprises a plurality of individually modulatable light sources and said second VCSEL array comprises a plurality of continuously operable light sources.

14. (Unchanged) The optical recording system of claim 12 wherein:

said first VCSEL array is capable of emitting a plurality of light beams having a first wavelength;

said second VCSEL array is capable of emitting a plurality of light beams having a second wavelength different from said first wavelength; and

said objective lens is achromatic.

15. (Unchanged) The optical recording system of claim 12 wherein each VCSEL of said first VCSEL array is capable of writing a separate track on said target medium.

16. (Unchanged) The optical recording system of claim 15 wherein said first VCSEL array is positioned at an angle relative to a direction of movement of said target medium.

17. (Unchanged) The optical recording system of claim 11 wherein said first and second VCSEL arrays are located on separate substrates.

18. (Unchanged) The optical recording system of claim 11 wherein said first and second VCSEL arrays are located on a common substrate.

19. (Unchanged) The optical recording system of claim 11 wherein said first and second VCSEL arrays have the same array spacing.

20. (Unchanged) The optical recording system of claim 12 further comprising:

a first polarizing beam-splitter located between said first VCSEL array and said objective lens;

a second polarizing beam-splitter located between said first polarizing beam-splitter and said objective lens; and

a circularly polarizing plate located adjacent said second polarizing beam-splitter.

21. (Unchanged) The optical recording system of claim 20 wherein said first polarizing beam-splitter comprises a dichroic polarizing beam-splitter.

22. (Amended) An optical recording system comprising:

a writing array of Vertical Cavity Surface Emitting Lasers (VCSEL);

a reading array of VCSEL;

a dichroic polarizing beam-splitter positioned to receive a plurality of light beams from each of said writing VCSEL array and said reading VCSEL array;

a polarizing beam-splitter positioned to receive said light beams upon said light beams exiting said dichroic polarizing beam-splitter;

a circularly polarizing plate coupled to an exit face of said polarizing beam-splitter;

an achromatic objective lens positioned to receive said light beams upon said light beams exiting said circularly polarizing plate, wherein said objective lens is capable of focusing said light beams on a target medium;

at least one adjustment device coupled to said objective lens to adjust a position of said objective lens;

a detection system positioned to receive said light beams upon said light beams reflecting from said target medium, said detection system capable of providing data to control said at least one adjustment device.